# Workshop 1 Agenda

Virtual Workshop on Advances in Wood Heater Research and Development
January 11th and 12th, 2022
*As part of the 5th Wood Heater Design Challenge*

## Day 1

**January 11th, 2022 10:00 – 13:00 New York Time (Eastern Standard Time)**

| TIME | TOPIC |
|---|---|
| 10:00 – 10:05 | Welcome and goals for the wood heater design challenge and the workshop<br>Dr. Mark Shmorhun, DOE, USA |
| 10:05 – 10:10 | Organization of the workshop<br>Dr. Vi Rapp, LBNL, USA |
| 10:10 – 10:30 | "Basics of Biomass Combustion & Moving Forward to Achieve the Best Performance"<br>Rebecca Trojanowski, BNL, USA |
| 10:30 – 10:50 | "Wood Combustion Agenda 2030 - Development Pathways for a Low Emission Future"<br>Dr. Ingo Hartmann, DBFZ, Germany |
| 10:50 – 11:00 | BREAK |
| 11:00 – 11:50 | **Breakout Panels**<br>Session A: Fuel of the future—keeping biomass relevant in the electrified heating sector<br>Session B: Advanced control strategies<br>Session C: Advanced combustion strategies |
| 11:50 – 12:05 | BREAK |
| 12:05 – 12:20 | Closing remarks (summary of breakout panels) |
| 12:20 – 1:00 | Optional networking |

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## Day 2

**January 12th, 2022 10:00 – 13:00 New York Time (Eastern Standard Time)**

| TIME | TALK |
|---|---|
| 10:00 – 10:10 | Highlights from day 1 of workshop |
| 10:10 – 10:35 | "The Past, Present, and Future: Wood Heat and Public Health"<br>Lisa Rector, NESCAUM, USA |
| 10:35 – 11:00 | **TITLE*<br>Dr. Hans Hartmann, TFZ, Germany |
| 11:00 – 11: 10 | BREAK |
| 11:10 – 12:00 | **Breakout Panels**<br>Session D: Improving biomass combustion through modeling<br>Session E: Catalysts and ESP's<br>Session F: Advanced hydronic heater design concepts |
| 12:00 – 12:15 | BREAK |
| 12:15 – 12:30 | Closing remarks (summary of breakout panels) |
| 12:30 – 1:00 | Optional networking |

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## Breakout Sessions:

DAY 1:

| Session A | Fuel of the future—keeping biomass relevant in the electrified heating sector |
|---|---|
| Description | With the push to an electrified heating sector will there be a shift towards pellets and chips from cordwood as they've been encouraged as cleaner fuels already? Perhaps the future is beyond and includes other fuels such as biochar as byproduct from other biofuel industries to reduce emissions? Can we pre-treat wood to decrease emissions? What does this mean in terms of design and flexibility of systems? |
| **Session B** | **Advanced control strategies** |
| Description | Through the use of automation and various control strategies, we can improve combustion to minimize the emissions but also mitigate operator errors and provide a friendly user interface to educate users—what has worked best so far and what more can we do? |
| **Session C** | **Advanced combustion strategies** |
| Description | Gasification and the use of combustion staging have shown improvements in emissions and efficiency, what is the state of the art? Can we further improvements with novel airflow designs? What works and doesn't? |

DAY 2:

| **Session D** | **Improving biomass combustion through modeling** |
|---|---|
| Description | Preliminary modeling can help manufacturers explore new techniques and features to reduce emissions that could have a significant impact on air quality, but commonly available modeling techniques are too rudimentary to provide sufficient resolution for design optimization. |
| **Session E** | **Catalysts and ESP's** |
| Description | Post combustion control strategies can help mitigate emissions and recent trends in small scale ESPs and novel catalyst designs can help achieve lower emissions. What is the current SOA and how can we continue to advance this area? |
| **Session F** | **Advanced hydronic heater design concepts** |
| Description | Thermal storage and modulation have shown to have a positive effect in terms of emissions and efficiency performance, so why aren't these strategies used everywhere or the new minimum standard? |